

Submittal Guidelines for Alternate Power Sources

The following items must be submitted with plans for solar PV permit applications and other alternate power sources. Please also read “Accessory Solar and Small Solar Facilities” for all other planning and building permit submittal requirements.

1. System type – Stand-alone, Multimode, or Interactive
2. Site/roof diagram identifying the location of all major system components (solar array/collectors, dedicated PV system meter, PV array DC disconnect switch, PV system utility AC disconnect switch, inverter), access pathways and roof ridge setbacks
3. One-line electric diagram showing the locations of all field-installed components:
 - Wire size, type, and number of wires per conduit (including grounds)
 - Grounding electrode conductor size and location
 - Conduit type and size
 - AC disconnect – amperage, voltage, fuse size/type
 - DC disconnect - amperage, voltage, fuse size/type
 - Rapid shutdown control in accordance with NEC Article 690.12
4. Busbar amperage rating for panel receiving power from photovoltaic inverter AC output.
5. Major component information: (Manufacturer’s PDF product data sheets preferred)
 - Inverter make, model, AC/DC input/output amperages
 - Module make, model, Isc, Voc, coefficients of Voc, wattage
 - Combiner box make, model, breaker DC voltage rating
 - ❖ For multimode systems:
 - Charge controller make, model, voltage, amperage, wattage
 - Battery make, model, voltage and amp/hour rating
 - Lowest battery operating voltage, max cable length and size
 - Battery short-circuit current from the manufacturer
 - ❖ Generator make, model, voltage, amperage, wattage, circuit breaker size
 - ❖ Wind turbine make, model, voltage, amperage, and wattage
6. Array information: (Manufacturer’s PDF product data sheets preferred)
 - Number of series panels and max Voc
 - Number of parallel panels and max Isc
7. Mounting information: Distance from roof to bottom of conduit
8. State of Colorado licensed Professional Engineer’s letter addressing the roof or wall system’s ability to withstand both gravity and uplift loads of the solar system. Site design snow and wind loads and anchoring connections shall be outlined in the Engineer’s letter as well. Provide footing/foundation design/details for ground-mounted systems.

NOTES

- All systems/equipment must be listed/labeled by a nationally-recognized testing laboratory
- All equipment must be installed in accordance with the manufacturer’s instructions, carefully observing operating temperature limitations for inverters installed outdoors
- Outdoor conductors and conduit fittings must be listed for wet locations
- Array grounding terminals and hardware must be suitable for use in wet locations
- Solar water heating equipment installation shall comply with the adopted plumbing code

See the following building code sections for more information on solar systems: 2018 IBC Sections 1510.7, 1512.1, 1607.13.5; 2018 IRC Section R324, Chapter 23; 2018 IFC Section 1204